McIntosh

MA 5100

PREAMP - AMPLIFIER



SERVICE INFORMATION

STARTING WITH SERIAL NO. **21HOO**

MA 5100

McINTOSH LABORATORY INC. 2 CHAMBERS STREET BINGHAMTON, NEW YORK

ELECTRICAL SPECIFICATIONS

Power Output:

90 watts RMS continuous, 45 watts per channel operating simultaneously into 4 ohm or 8 ohm loads.

60 watts RMS continuous, 30 watts per channel operating simultaneously into 16 ohm loads.

Harmonic Distortion:

Less than 0.25% at rated power output from 20Hz to 20,000Hz with both channels operating.

Intermodulation Distortion:

Less than 0.25% for any combination of frequencies from 20Hz to 20,000Hz if instantaneous peak power is 90 watts per channel or less into 4 or 8 ohm loads and 60 watts per channel or less into 16 ohm loads with both channels operating.

Frequency Range:

At rated output both channels: ±0.5dB 20Hz through 20,000Hz.

Output Impedance:

4 ohm, 8 ohm, 16 ohm. No impedance switching required.

Internal Impedance/Damping:

Less than .04 ohms; damping factor greater than 100.

Input Sensitivity And Impedance:

Auxiliary, Tape, Tuner, and Tape Monitor: 300mV, 250K ohms.
Phono 1 and Phono 2: 2mV, 47,000 ohms.
Tape Head: 2mV, 1/2 megohm.

Hum And Noise:

High Level Inputs: 75dB below rated output.
Low Level Inputs: 70dB below 10mV input.
Power Amplifier: 90dB below rated output.

Tape Output:

300mV at rated sensitivity, 1.4 volts with 10mV at phono input.

Left Plus Right Output:

Adjustable 0 to 6 volts from generator impedance of less than 5,000 ohms.

Bass Controls:

+18dB at 20Hz.

Treble Controls:

+l8dB at 20,000Hz.

HF Filter:

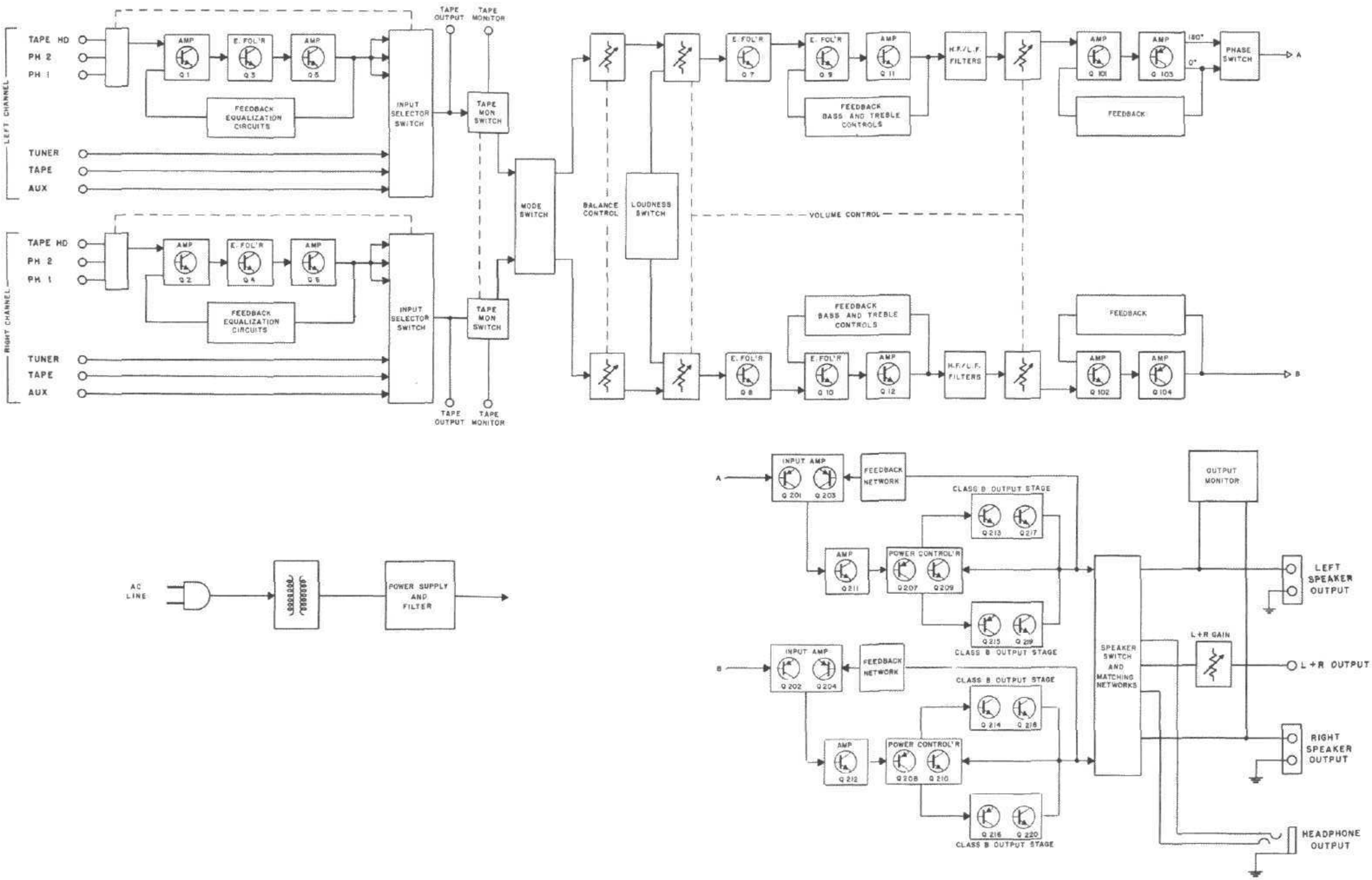
Flat, or 5,000Hz cutoff.

LP Filter:

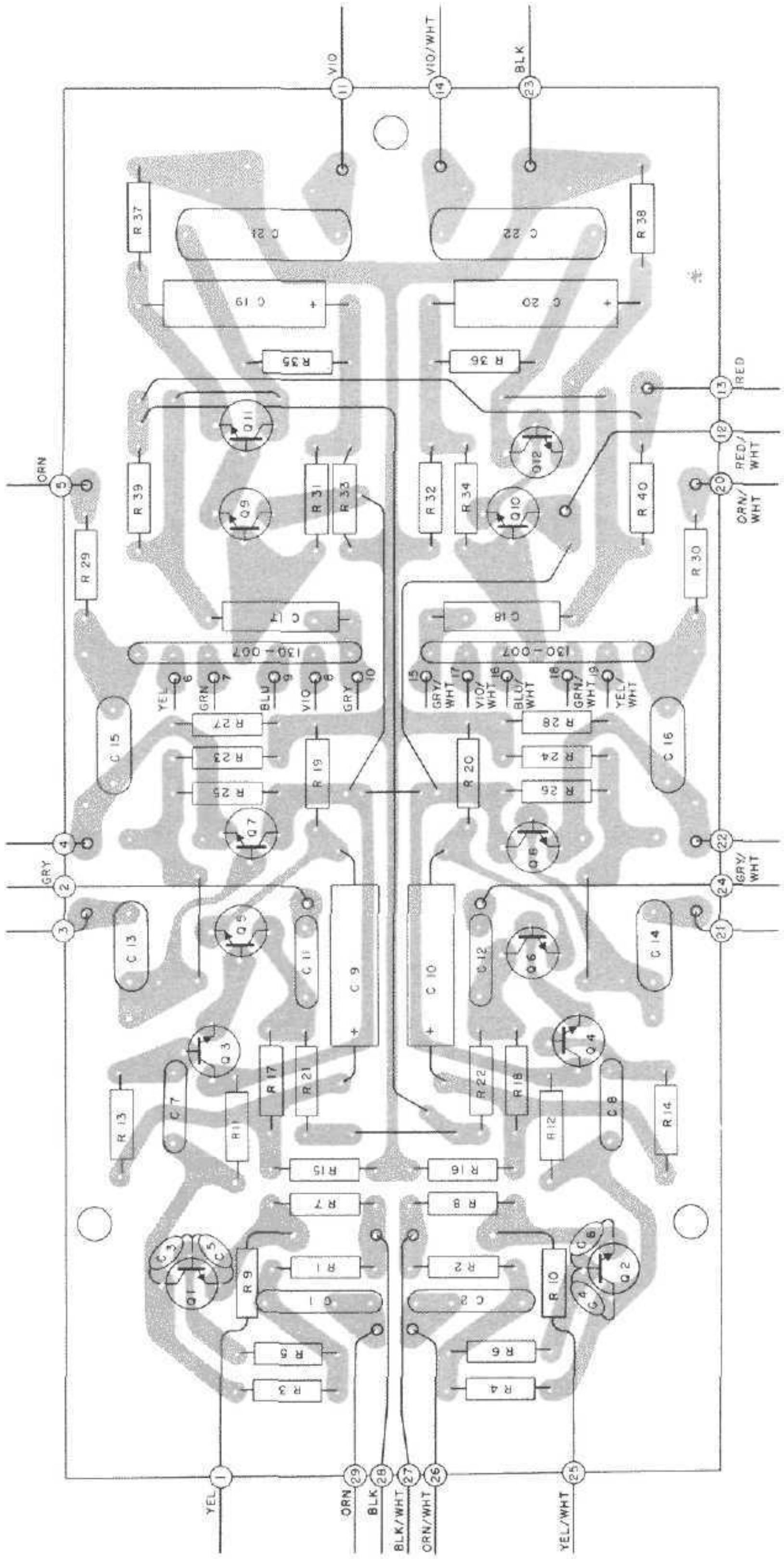
Plat, or 50Hz cutoff.

Power Requirements;


117 volts AC, 50-60Hz, 70 watts at zero signal output, 200 watts at rated output.



MA 5100 BLOCK DIAGRAM




PREAMP. SECTION PRINTED CIRCUIT BOARD 043-989



PREAMP. SECTION

MA 5100

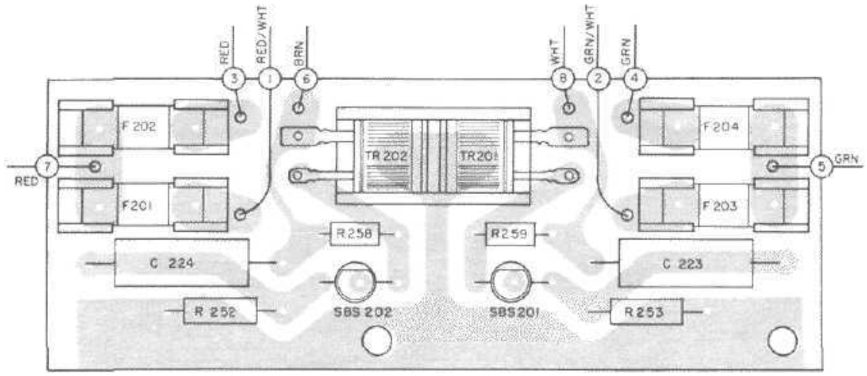
154-411



HEAVY LINE SHOWS PRIMARY SIGNAL PATH

POWER OUTPUT SECTION

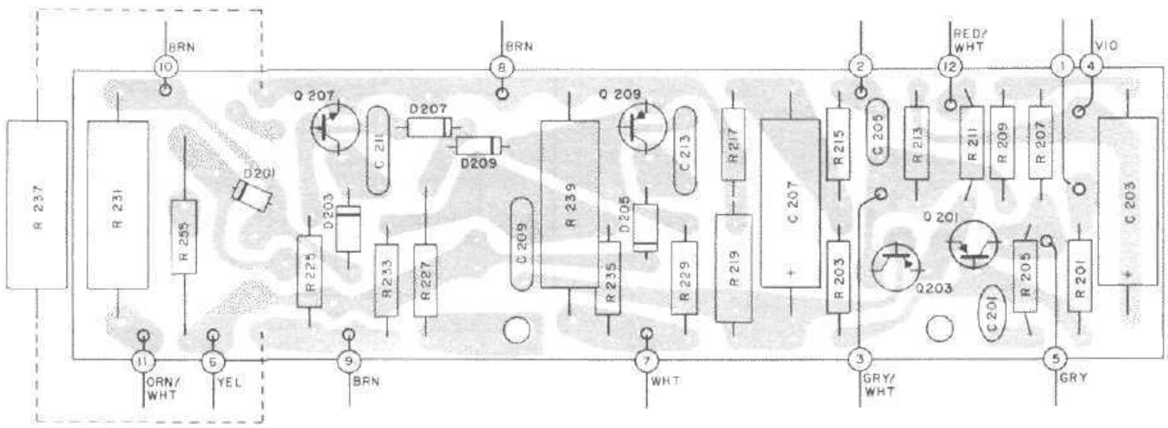
MA 5100 154-376



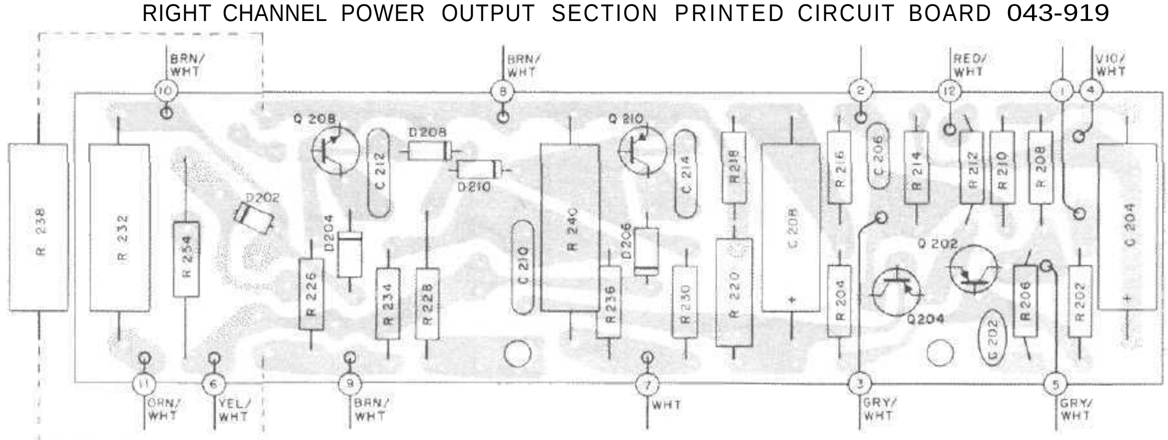
OUTPUT MONITOR PRINTED CIRCUIT BOARD 043-821

(NOTE 1)

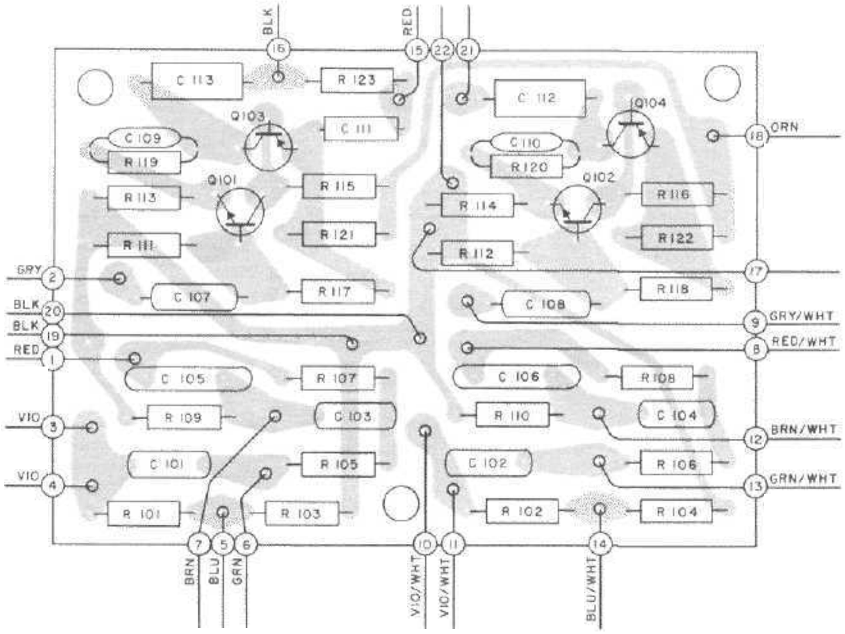
LEFT CHANNEL POWER OUTPUT SECTION PRINTED CIRCUIT BOARD 043-919

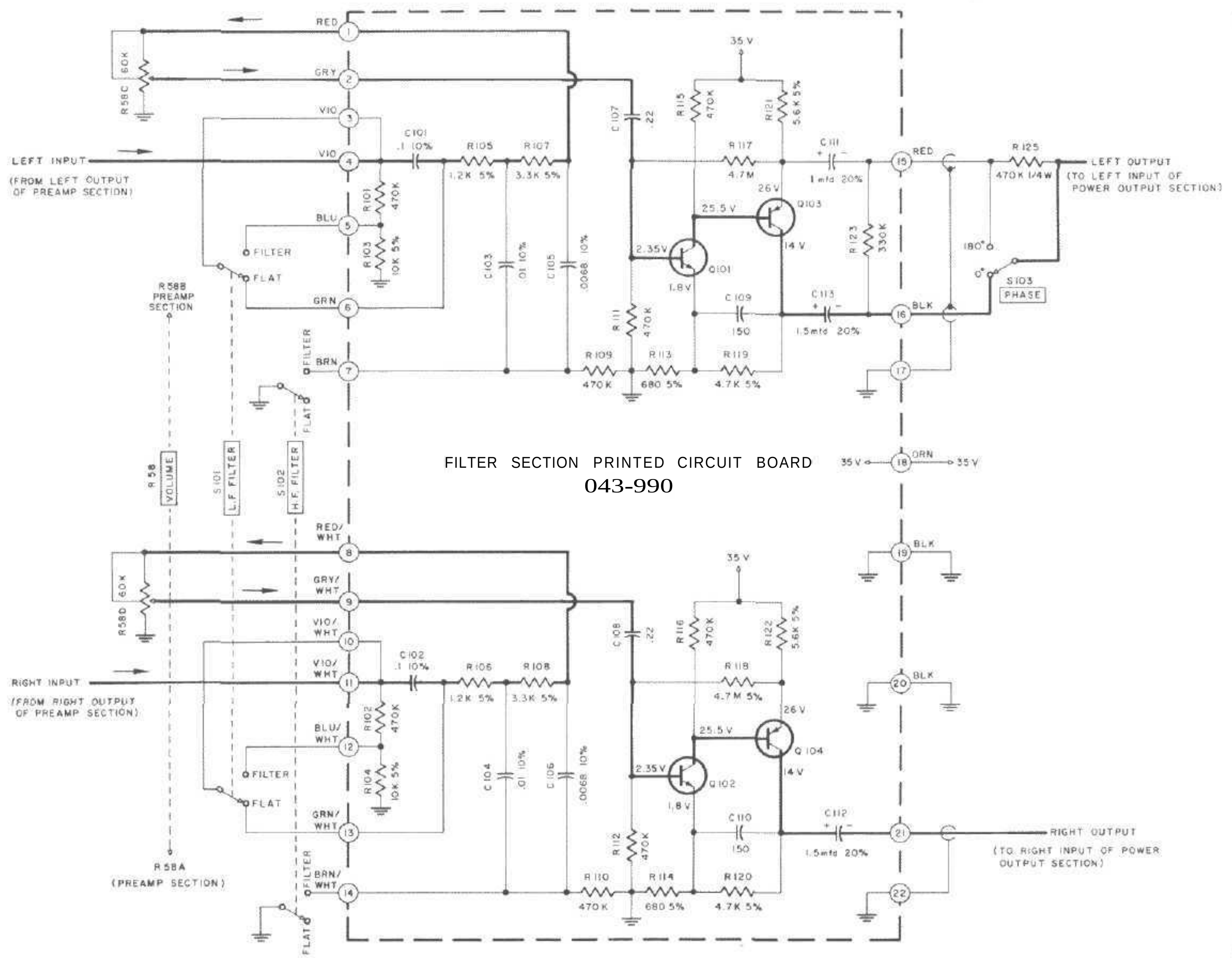


RIGHT CHANNEL POWER OUTPUT SECTION PRINTED CIRCUIT BOARD 043-919



FILTER SECTION PRINTED CIRCUIT BOARD **043-990**





FILTER SECTION

MA5100 154-410

SCHEMATIC NOTES

Unless otherwise specified: Resistance values are in ohms, 1/2 watt, and 10% tolerance; capacitance values smaller than 1 are in microfarads (mfd); capacitance values greater than 1 are in picofarads (pF); inductors are in microhenries (µH).

Printed circuit board components are outlined on the schematics by dotted lines. The circled numbers on the dotted lines correspond to the numbers of the PC board layouts.

The heavy lines on the schematics denote the primary signal path.

The terminal numbering of rotary switches is for reference only.

All voltages indicated on the schematics are measured under the following conditions:

a. Use of an 11 megohm input impedance VTVM,

b. All voltages ±10% with respect to chassis ground.

c. No signal at input terminals,

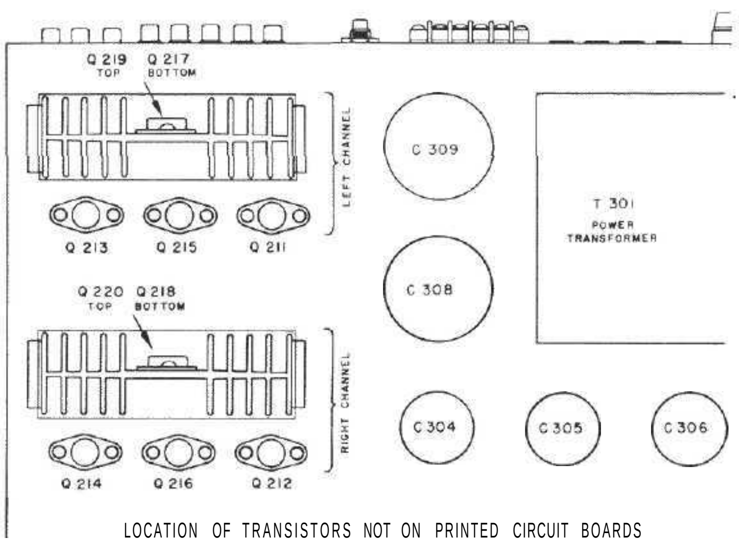
d. AC input at 117 volts AC, 50/60Hz.

e. Front panel controls at:

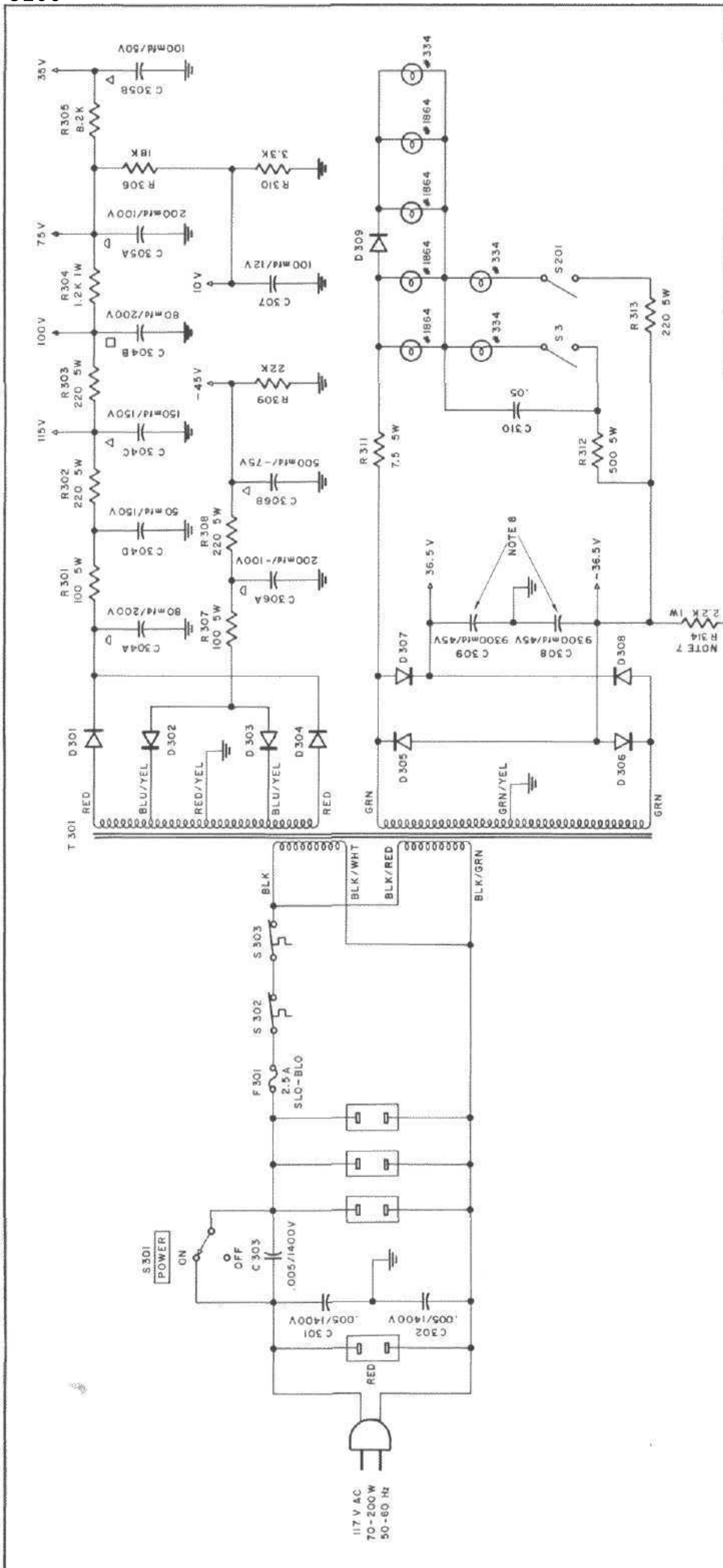
Input Selector	AUX	Volume	MAX
Mode Selector	STEREO	Power	ON

All other controls in normal position.

1. In units with serial numbers below 46H01, the output monitor PC board is not used.
2. In units with serial numbers below 44H50: R256 & R25? are not used; R254 & R255 are 120 ohms; transistors Q205 & Q206 (132-021) and pots R221 & R222 (134-120) are used; the emitter of Q2l5 & Q216 is connected as shown by the dotted line; C221 & C222 are used.
3. In early units, C5 & C6 were 39pF.
4. In units with serial numbers below 30H15: L201, L202, R241, R242, C215, C216, C217, and C2l8 are not used; C227, C228, C229, C230, C231, and C232 are used; R229 & R230 are 100 ohms; C201 & C202 are 330pF.
5. In early units, C207 & C208 were 200µF, 3V (part number 066-086).
6. In units with serial numbers below 30H30: D201 & D202 were two diodes (part number 070-022).
7. In units with serial numbers below 28H00: C3, C4, C5, C6, R9, R10, and R314 are not used.
8. In early units, C308 & C309 were 10,000µF, 40V (part number 066-090).
9. In units with serial numbers below 24H05: R237 & R238 are .47 ohms; R233 & R234 are 220 ohms; C211, C212, C213, and C2114 are .01µF.
10. In units with serial numbers below 23H7S: D211, D212, D213, and D214 are not used.
11. In units with serial numbers below 22H00: R227 & R228 were 1K, 10%, 1W,
12. In units with serial No's below 54H60: R254 and R255 are 18Ω and F201, F202, F203j and F204 are 3A fuses. (Part Ho. 089019)



LOCATION OF TRANSISTORS NOT ON PRINTED CIRCUIT BOARDS



POWER SUPPLY SECTION

MA 5100 154-331

REPLACEMENT PARTS

All parts not listed are common items obtainable from radio parts jobbers.

Replacement parts may be obtained when ordered by PART NUMBER from:

McIntosh Laboratory, Inc.
Customer Service Department
2 Chambers Street
Binghamton, New York 13903
(telephone 607-723-3512)

CAPACITORS

Symbol Number	Description			Part Number
C1,2	Mylar	.22µF	250V	064-043
C7,8	Mylar	.1µF	250V	064-037
C9,10	Elect.	100µF	12V	066-127
C11,12	Mylar	.1µF	250V	064-037
C13,14	Mylar	.1µF	250V	064-037
C15, 16	Mylar	.47µF	75V	064-039
C17,18	Mylar	.47µF	250V	064-045
C19,20	Elect.	100µF	12V	066-127
C21,22	Mylar	.47µF	250V	064-045
C23,24	Mylar	.22µF	200V	064-087
C101,102	Mylar	.1 µF	250V	064-038
C103,104	Mylar	.01µF	250V	064-040
C107,108	Mylar	.22µF	250V	064-043
C111	Ta. Elect.	1µF	35V	066-091
C112,113	Ta. Elect.	1.5µF	35V	066-092
C203,204	Elect.	100µF	12V	066-127
C207,208	Elect.	180µF	3V	066-111
C211,212	Mylar	.047µF	250V	064-044
C213,214	Mylar	.047µF	250V	064-044
C223,224	Elect.	10µF	25V	066-005
C304	Elect.	80/80/150/50µF 200/200/150/150V		066-103
C305	Elect.	200/500µF 100/50V		066-099
C306	Elect.	200/500µF -100/-75V		066-093
C307	Elect.	100µF	12V	066-127
C308	Elect.	9300µF	45V	066-106
C309	Elect.	9300µF	45V	066-106

DIODES

D201,202	Si. reference diode	070-040
D203,204	Si. rectifier	070-030
D205,206	Si. rectifier	070-030
D207,208	Si. signal diode	070-022
D209,210	Si. signal diode	070-022
D211,212	Si. rectifier	070-031
D213,214	Si. rectifier	070-031
D301	Si. rectifier	070-031
D302	Si. rectifier	070-031
D303	Si. rectifier	070-031
D304	Si. rectifier	070-031
D305	Si. rectifier	070-041
D306	Si. rectifier	070-041
D307	Si. rectifier	070-041
D308	Si. rectifier	070-041
D309	Si. rectifier	070-030

FUSES

F201,202	Fuse 4A (SFE-4)	089-021
F203,204	Fuse 4A (SFE-4)	089-021
F301	Fuse 2.5A Slo-Blo	089-015

CHOKES

L201,202	Choke 2µH	122-064

TRANSISTORS

Q1,2	Si. NPN transistor	132-041
Q3,4	Si. NPN transistor	132-041
Q5,6	Si. NPN transistor	132-051
Q7,8	Si. NPN transistor	132-041
Q9, 10	Si. NPN transistor	132-057
Q11,12	Si. NPN transistor	132-051
Q101,102	Si. NPN transistor	132-057
Q103,104	Si. PNP transistor	132-029
Q201,202	Si. PNP transistor	132-029
Q203,204	Si. PNP transistor	132-029
Q207,208	Si. NPN transistor	132-021
Q209,210	Si. PNP transistor	132-032
Q211,212	Si. NPN transistor (for units above 22H60)	132-515
Q211,212	Si. NPN transistor (for units below 22H60)	132-022
Q213,214	Si. NPN transistor	132-521
Q215,216	Si. PNP transistor	132-527
Q217,218	Si. NPN transistor	132-533
Q219,220	Si. NPN transistor	132-533

POTENTIOMETERS

R53	Balance control	134-035
R58	Volume Control	134-033
R63	Bass control (w/flat shaft)	134-172
R63	Bass control (w/knurled shaft)	134-162
R64	Treble control (w/flat shaft)	134-173
R64	Treble control (w/knurled shaft)	134-163
R247	L & R adjust	134-063

RESISTORS

R231 ,232	Wirewound	3.6k	5W	139-013
R237,238	Wirewound	.33 ohms	5W	139-036
R239,240	Wirewound	.47 ohms	5W	139-050
R250,251	Wirewound	200 ohms	5W	139-009
R301	Wirewound	100 ohms	5W	139-008
R302,303	Wirewound	220 ohms	5W	139-009
R307	Wirewound	100 ohms	5W	139-008
R308	Wirewound	220 ohms	5W	139-009
R311	Wirewound	7.5 ohms	5W	139-010
R312	Wirewound	500 ohms	5W	139-011
R313	Wirewound	220 Ohms	5W	139-009

SWITCHES

S1	Input selector switch	146-035
S2	Compensation switch	148-019
S3	Tape monitor switch	148-012
S4	Mode selector switch	146-105
S5	Loudness switch	148-019
S101	LF switch	148-019
S102	HF switch	148-019
S103	Phase switch	148-019
S201	Speaker switch	148-012
S301	Power switch	148-005
S302	Thermal cut out	153-007
S303	Thermal cut out	153-007

TRANSFORMERS

T301	Power transformer	043-551

THYRISTORS & TRIGGERS

TR201 ,202	Triac	131-001
SB201 ,202	Bilateral switch	131-002

MODULES

Tone Control module	130-007
Compensation module	130-026

FRONT PANEL & TRIM

Front panel	043-725
Front panel end cap {right)	018-043
Front panel end cap (left)	018-044
Volume control knob	043-253
Balance control knob	043-253
Input control knob	043-253
Mode selector knob	043-253
Treble knob (rear)	090-009
Treble knob (front) - for flat shaft	043-625
Treble knob (front) - for knurled shaft	090-008
Bass knob (rear)	090-009
Bass knob (front) - for flat shaft	043-625
Bass knob (front) - for knurled shaft	090-008

LAMPS

Panel illumination #1864	058-028
Switch indicator #334	058-003

MOUNTING SYSTEM

Shelf bracket {right)	043-234
Shelf bracket (left)	043-235
Mounting template #100	038-179
Hardware package	043-557

MISCELLANEOUS ITEMS

Plastic feet	017-041
Shipping carton	043-727
Owners manual	038-129
Line cord	170-021
Shorting plug	127-001
Fuseholder	178-001

15C1114S6-M9376

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